Politics and the Erosion of Federal Scientific Capacity: Restoring Scientific Integrity to Public Health Science

Our nation's health and prosperity are based on a foundation of independent scientific discovery. Yet in recent years, political interference in federal government science has become widespread, threatening this legacy.

We explore the ways science has been misused, the attempts to measure the pervasiveness of this problem, and the effects on our long-term capacity to meet today's most complex public health challenges. Good government and a functioning democracy require public policy decisions to be informed by independent science.

The scientific and public health communities must speak out to defend taxpayer-funded science from political interference. Encouragingly, both the scientific community and Congress are exploring ways to restore scientific integrity to federal policymaking. (*Am J Public Health.* 2007; 97:1939–1944. doi:10.2105/AJPH.2007.118455)

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Science, like any field of endeavor, relies on freedom of inquiry; and one of the hallmarks of that freedom is objectivity. Now more than ever, on issues ranging from climate change to AIDS research to genetic engineering to food additives, government relies on the impartial perspective of science for guidance.

—President George H.W. Bush[1]

IN 1990, A FORMER President Bush extolled the value of independent science to inform public policy in a speech given before the National Academy of Sciences. Indeed, federally conducted or funded research has enhanced our understanding of the determinants of health and disease, providing the knowledge base for many preventive and therapeutic interventions that protect and promote health. Government agencies rely on this knowledge base to promulgate regulations, establish standards and guidelines, create surveillance and reporting systems, disseminate information, and conduct public health campaigns that have dramatically improved public health.

Although mutually dependent, science and public policy have a complex and often difficult relationship. In democratic societies, they share the core values of openness and transparency. Free exchange of ideas and information, independent verification, peer review, and publication are hallmarks of the scientific enterprise and are seen as fundamental to its success and progress.[2] The legitimacy, authority, credibility, and acceptability of our public policies depend on the public's trust in the validity of the processes that produced them.[3]

Political interference in science is hardly a new phenomenon,[4] but the suppression, manipulation, disrespect, and disregard of our federal science and scientists has become widespread and pervasive.[5–8] The current administration has exerted political muscle—sometimes blatant and other times almost unnoticed—on such wide-ranging scientific issues as global warming,[9–11] international health,[12] endangered species,[13] childhood lead poisoning,[14] mercury emissions from power plants,[15] condoms,[16] and mountaintop removal mining.[17,18]

TYPES OF POLITICAL INTERFERENCE

Recent attempts at political interference can be roughly grouped into 4 types: (1) suppressing, distorting, or otherwise misusing scientific information; (2) controlling federal scientists; (3) limiting public access to scientific information; and (4) changing the way scientific information is incorporated into the decision-making process.

Misusing Scientific Information

Perhaps the most notorious examples of this type involve the issue of climate change. As the US Environmental Protection Agency (EPA) prepared its 2003 *Report on the Environment,* White House officials tried to substantially alter the section on climate change, which referred to studies showing the significant contribution of human activity to climate change. The White House demanded so many qualifying words that the result would have been to insert uncertainty "where there is essentially none."[19(p6)] Rather than compromising their credibility by misrepresenting the scientific consensus, EPA scientists decided to delete the entire section.[10] Later, in a story that made the front page of the *New York Times*, a White House lawyer formerly employed by the American Petroleum Institute significantly edited another EPA climate change report.[11] The subsequent furor led to his resignation and his departure for Exxon Mobil,[20] a major corporate sponsor of global warming skepticism.[21]

A less public but no less egregious example involves mercury and human health. In 2002, the administration sought to suppress EPA data showing that 8% of women aged between 16 and 49 years have mercury levels in their blood that could lead to reduced IQ and motor skills in their children.[22] In 2005, the EPA's inspector general reported that senior agency management had instructed staff members to arrive at a predetermined conclusion favoring industry when they prepared a rule to set limits on mercury emissions from coal-fired power plants.[15] Days later, a Government Accountability Office report criticized EPA for seriously truncating its analysis of the

health benefits of decreased mercury emissions by not including mercury-specific impacts, such as developmental delays, learning disabilities, and other neurological disorders.[23] A month later, in March 2005, EPA issued its final rule without new analyses of health benefits.[24] In June 2005, the American Public Health Association and other health groups filed a lawsuit challenging the new rule.[25] Despite this and other petitions from states and environmental groups, EPA reaffirmed its cap-and-trade rule in May 2006.[26]

Controlling Federal Scientists

Information can also be controlled by muzzling scientific experts. A widely publicized example involved James Hansen, PhD, director of the National Aeronautics and Space Administrations's (NASA's) Goddard Institute for Space Studies. A vocal spokesperson on the urgency of taking action on climate change, Hansen was warned of "dire consequences" by a low-level agency public affairs political appointee if he continued to make such statements.[27] Other federal climate scientists have reported similar pressure.[28] Despite congressional hearings and sustained media attention on the suppression of global warming scientists, in March 2007, US Fish and Wildlife Service scientists were prevented from answering questions at an international conference about the impact of climate change on polar bears.[29]

The ability of federal scientists to participate in scientific exchange also has been curtailed. In April 2004, for example, the US Department of Health and Human Services (HHS) implemented a new policy requiring that an HHS political appointee approve all experts before their participation on international scientific panels, including those convened by the World Health Organization.[12] Many in the scientific community denounced the new policy as an unprecedented attempt to prevent HHS employees from offering independent scientific advice.[12] A more recent policy requires the political vetting of Centers for Disease Control and Prevention scientists who are given foreign assignments, delaying the process by 2 to 3 months.[30] A statement from the American Sociological Association summed up the potential danger of this practice:

> the inevitable result will be fewer invitations for US scientists to contribute to scientific discourse at the international level and the consequent lessening of US influence and relevance.[31]

Limiting Public Access to Information

Other troubling efforts have limited public access to previously available scientific, health, and safety information. A recent example that produced substantial outrage involved EPA's closure of significant parts of its network of 27 libraries,[32,33] including the Prevention, Pesticides and Toxic Substances Chemical Library used by its own scientists. This decision, which a large number of EPA staff members protested,[34] potentially puts decades of valuable information beyond the reach of government scientists, independent researchers, and the public. Accelerating the implementation of a presidential budget request that included an 80% cut to its library funding,[35] the EPA began shuttering its research libraries weeks earlier than the October 1 start of its fiscal year[36] and even before Congress had authorized the budget cuts. Registering a concern that the agency may not have or allocate sufficient funds to digitize the holdings, some members of the House Science Committee requested an examination of the issue by the Government Accountability Office.[37]

Decisions and actions to withhold or limit access to information because of national security are of increasing concern. A 2003 *U.S. News and World Report* investigation found that the administration had effectively placed off-limits critical health and safety information, including some data on quality and vulnerability of drinking water supplies, potential chemical hazards in communities, and safety of airline travel.[38] Coupled with concern about overclassification of information,[39] the provision of new classification authority to federal agencies that previously lacked it—EPA, HHS, and the Department of Agriculture—is also worrisome.[40]

The collection and analysis of information deemed vital by researchers and the public has also been reduced. These reductions include scaling back reporting requirements for industrial and public sector facilities under EPA's Toxics Release Inventory program[41]; attempting to privatize the federal journal *Environmental Health Perspectives*[42]; and severely reducing funding for federal long-term climate-monitoring satellites, a move that federal scientists said "places the overall climate program in serious jeopardy."[43(p5)]

Interfering With the Scientific Process

Science advisory committees have always played an important role in federal policymaking,[44,45] addressing topics from nuclear science research to immunization. Attempts to politicize the appointment process or the response to committee advice have been well documented. On panels that examine childhood lead poisoning[46] and stem cell research,[47] highly qualified scientists have been replaced by less-qualified appointees or by members with financial conflicts or ideological preferences. The Bush administration has rejected panel nominees for overtly political reasons[48] or for answering political questions "incorrectly."[49] Panels too ideologically distinct from the administration's predetermined views have been disbanded.[7,50]

Expert advice of important advisory committees has been misrepresented or ignored. A US Food and Drug Administration (FDA) official overruled the advice of the agency's staff and two independent scientific advisory panels[51] when he decided to deny women over-the-counter access to the emergency contraceptive levonorgestrel (sold under the brand name "Plan B").[52] Numerous individuals involved in and familiar with the approval process called the move an almost unprecedented repudiation of government scientific expertise.[53,54] After senators put a hold on the confirmation of FDA commissioner Andrew Von Eschenbach,[55] the FDA approved Plan B, but only for women 18 years and older, despite a scientific consensus that the drug is safe for all ages.[56]

Another notable example involves the promulgation of National Ambient Air Quality Standards under the Clean Air Act, which requires the EPA to create the standards with the best available science. In 2005, the EPA administrator for the first time overruled a nearly unanimous recommendation from its independent Clean Air Science Advisory Committee that the National Ambient Air Quality Standards for fine particulate matter be strengthened and instead maintained an outdated standard that does not adequately protect public health.[57] The committee wrote to the EPA administrator to explain the science behind its recommendations and urged him to reconsider the proposed standards, alleging that the EPA had "twisted" or "misrepresented" the committee's recommendations.[58]

Other measures further threaten the transparency of agency science and its use in regulatory policy. On January 18, 2007, President Bush quietly issued Executive Order 13422 on regulatory planning and review. The new executive order requires an agency to identify a "specific market failure" before it can assess whether or not to regulate.[59] This requirement essentially shifts the statutory intent away from public health, safety, or environmental protection, substituting executive authority for legislative authority found in such statutes as the Clean Air Act and Occupational Safety and Health Act.[60] The executive order also requires agencies to designate a political appointee as its regulatory policy officer and further expands this officer's responsibility. The regulatory policy officer is now charged with approving the agency's regulatory plan, a responsibility previously within the purview of the agency head. Far from shielding agency science from political interference, these new amendments may further erode the role of science and agency scientists in the regulatory process.

DOCUMENTING INTERFERENCE

The scientific and mainstream press has covered this issue with growing thoroughness. Congressional committee investigations and reports from several nonprofit organizations have also detailed the current threats.[8,61–64] Five surveys conducted in 2004–2006 by the Union of Concerned Scientists of scientists at 9 federal agencies—including the FDA, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration's Fisheries Division, and several agencies with scientists who work on climate change—have provided further evidence of political interference in our critical health and environmental agencies.[65]

Of the more than 1800 federal scientists who responded to these 5 surveys, 699 scientists reported that they fear retaliation for openly expressing concerns about their agency's work—a number that really should be zero. Within the FDA alone, more than one third of the 997 respondents did not feel they could express safety concerns even inside the agency, and 145 scientists reported having "been asked, for non-scientific reasons, to inappropriately exclude or alter technical information or their conclusions in a FDA scientific document"[65] (Figure 1).

IMPLICATIONS OF "POLITICAL SCIENCE"

Our country's legacy of scientific innovation and investment has brought us sustained economic progress, science-based public health policy, and unequaled scientific leadership across the world. The implications of political interference with science in the context of public policy are significant and serious, threatening not only public health, safety, and the environment but also the government's long-term ability to address these critical issues.

Suppressing, distorting, or otherwise misusing agency science, restricting scientific exchange, and exerting undue control over agency scientists demoralizes our dedicated cadre of government scientists and threatens agency ability to attract and retain top-notch scientists. Likewise, scientists may be increasingly unwilling to serve on federal advisory committees if they feel subject to political screening or believe their hard work and advice will be ignored or misused. Certain controversial research areas could suffer if scientists perceive they are unlikely to be funded because of ideological preferences. All this, in turn, will diminish government capacity to address current and future public and environmental health challenges.

Political interference also tarnishes the reputations of federal science agencies that have taken decades to build. When this interference is exposed, we should not be surprised when public trust in our highly respected public health and environmental agencies begins to diminish.

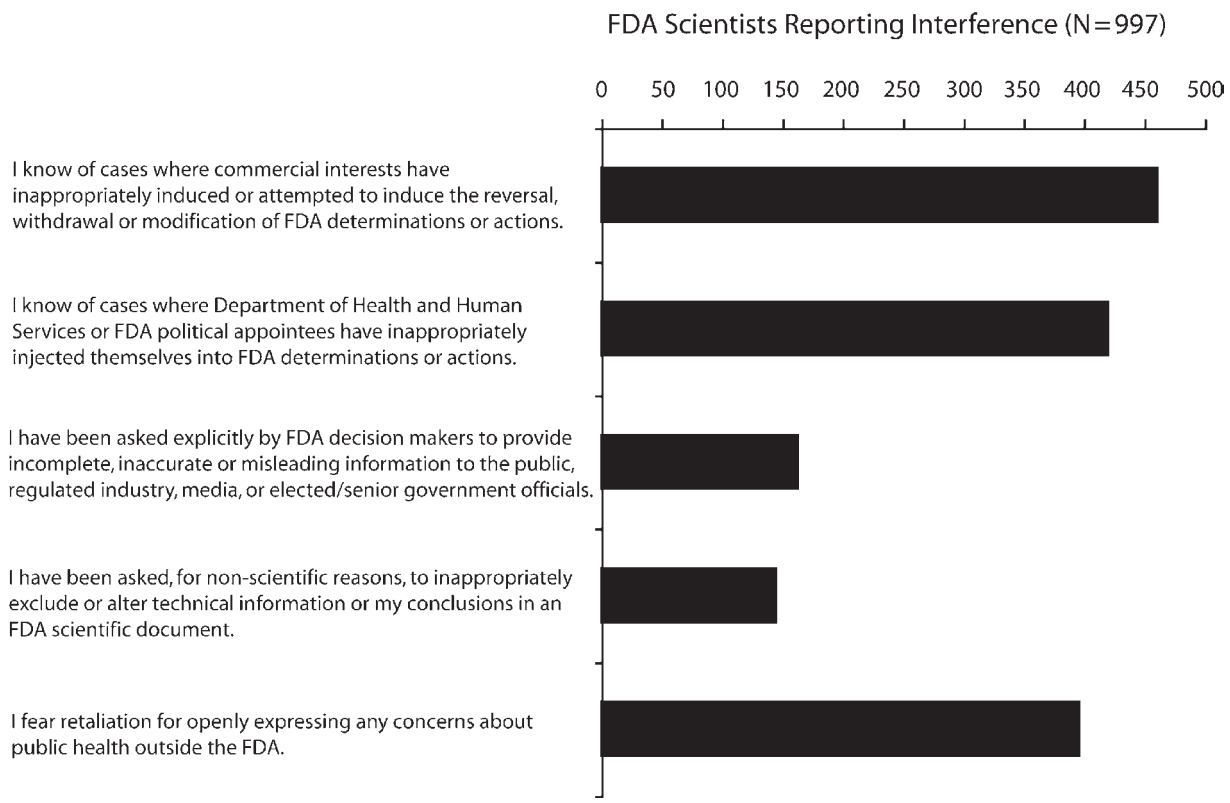
DEFENDING SCIENTIFIC INTEGRITY

Our nation's health and prosperity are based on a foundation of independent scientific discovery. The ability of scientists to conduct research, share their results without government interference or censorship, and participate in the policy process is vital to our democracy. Without access to the best available science, elected officials will be unable to make fully informed decisions, placing our health, safety, and environment at risk.

The reforms that will prevent political interference in federal science are as wide-ranging as the ways that science can be misused. Thus far, small victories have been achieved. For example, the 2006 appropriations legislation for HHS banned the deliberate dissemination of false or misleading information and prohibited the use of political litmus tests for HHS advisory committee candidates,[66] a practice that had been strongly condemned by the National Academy of Sciences.[67]

The 110th Congress has been extremely active on this issue, holding multiple oversight hearings to investigate allegations of interference in the scientific process and in the communication of scientific results.[68–72] Recognizing that reform can be accomplished through many types of legislation, Congress has advanced bills that would increase transparency in science-based decisionmaking at the FDA (S 1082) and give scientists the right to expose malfeasance without fear of retribution (HR 985).

Legislative solutions, however, are not enough. Agencies



Source. Data are from the Union of Concerned Scientists.[65]

FIGURE 1—Survey results on political interference in science at the US Food and Drug Administration (FDA), 2006.

themselves must adopt principles and policies that value a culture of scientific openness and give agency scientists the ability to communicate their findings without a political filter.

A CALL TO ACTION

Despite sustained attention from the media, Congress, and the scientific community, the misuse of science has not abated. When political interference in science becomes the norm, there is no guarantee that future administrations will refrain from misusing science or repair the systemic damage that has already been done. We need scientists, public health and medical professionals, and their institutions to be energetic and persistent in restoring and protecting the integrity of federal agency science.

Some have already begun to take up the charge. Numerous scientific societies, including the American Public Health Association, have hosted major symposia to increase their members' awareness of this problem. Several have issued statements and resolutions supporting the core values of independent science. More than 12 000 scientists, including 52 Nobel laureates and science advisers to both Republican and Democratic presidents dating back 50 years, have signed a statement (still open for signatures) condemning abuse of science and calling for reform.[73]

As public health advocates and professionals, we have both the duty and the credibility to speak out on this issue, with students, colleagues, and peers; in professional fora; and through the media. As trusted professionals, we can reach out to elected officials and local health reporters to educate them about the importance of independent science to American health and safety.

Serious action on this problem will require a strong and sustained commitment from the next president. In the public discourse, as the presidential campaigns heat up, we must be there to inject this issue into the litany of questions and concerns candidates must address on the campaign trail. At candidate appearances and through candidate Web sites, use your knowledge of how federal science directly affects your work to tell them why informed public health decisions must rely on independent science. Ask about their specific plans to protect the integrity of federal science and their commitment to more openness and transparency in science and science-based decisions at federal agencies. The public deserves a zero-tolerance policy for the manipulation and suppression of taxpayer-funded science.

When the new president begins his or her transition into office, the public health community must be well organized and equipped to ensure that high-level political appointees with

authority over public health agencies will support a culture of scientific openness. A host of professional and nongovernmental organizations will be engaging the presidential transition teams on a host of issues. The integrity of science is central and critical to so many. Work with your associations to ensure the issue is included in their communications and advice to the new administration.

As the current president prepares to leave office and the next one takes power, we have the opportunity to promote and protect the future of science in our federal agencies. Consider this a call to arms; now is the time to act. ■

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